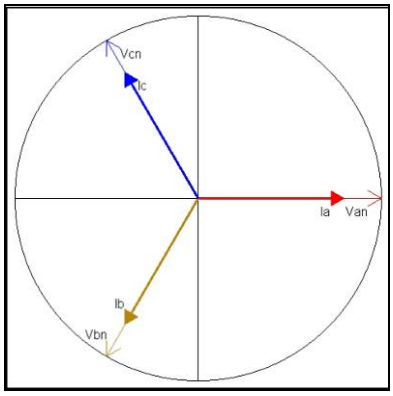
3-Phase, 4-Wire Wye (3V, 3C) SC

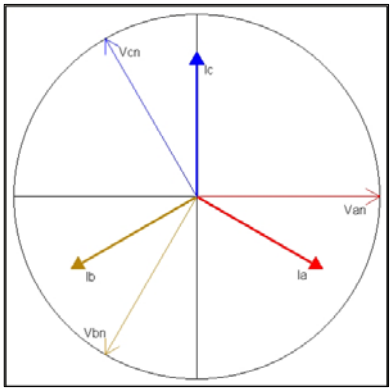
Service Type File:	S000F15
Meter:	16S, 16A
Meter Type:	Self Contained
Voltage:	120/208 or 277/480
Current Transformers:	N/A
Voltage Transformers:	N/A
Blondel's Theorem Compliant:	Yes
MC Standard Drawings:	3403, 3404
PowerMaster Model(s):	5300, 7300
Firmware:	1.0.0.6
App Note Revision:	1.00

Introduction

The simplest true 3-phase metering circuit is the 3-phase, 4-wire Y metered with a true 3 element meter. In this service, there are 3 distinct voltage and current power pairs with each metered as if it were a separate source returning through the neutral (ie, like 3 simultaneous 1-phase services at 120° angle spacing).



No Lag (1.00 PF)



30˚ Lag (0.866 PF)

Required Equipment

Item	Qty.		Description	Part Number
1.	1		PowerMaster® Model 7300 or 5300	10-130-7300 or 10-130-5300
2.	3		SR752 Clamp-On Probes	CALL FOR PART#

3.	1		3-Phase Voltage Cable	10-340-0005
4.	1		3-Phase Probe Adapter Cable	10-340-0014
5.	1		IR Pulse Detector	EP10-100-3327

Optional Equipment

The following equipment may be used as an alternate for the standard accessories:

Item	Qty		Description	Part Number	Alternate For
6.	3		36” Flexible Current Probes (600V, 1000A)	10-100-1036	Item #2
7.	1		Photo Disk Detector	EP10-100-3326	Item #5

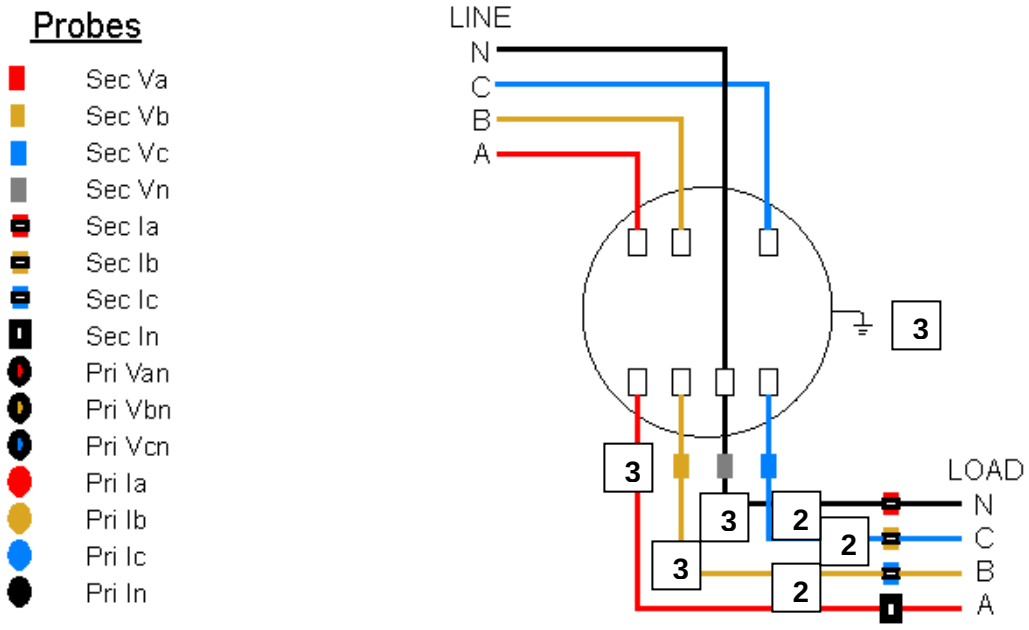
Miscellaneous Equipment

Personal Protective Equipment (PPE)

Cloth or rag to prevent possible sunlight when using the IR Pulse Detector

Equipment Hookup

The labels correspond to the item numbers from the Required Equipment table above.



A = Red, B = Yellow, C = Blue, Neutral/Ground = Gray

Procedure

1. Power up the PowerMaster by pressing the ON key.

2. From the PowerMaster, connect the 3-Phase Probe Adapter Cable to PROBE SET 1, and the 3-Phase Voltage Cable to VOLTAGE.

3. Connect the SR752 probes to the ends of the 3-Phase Probe Adapter Cable for PROBE SET 1 (A = red, B = yellow, C = blue).

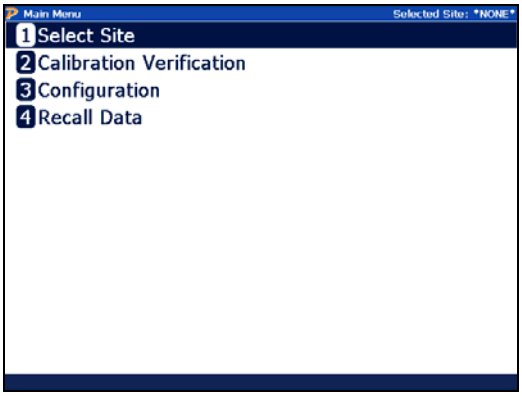
4. Connect the 3-Phase Voltage Cable leads to the potentials according to the wiring diagram shown in “Equipment Hookup” (A = red, B = yellow, C = blue, Neutral = white, Ground = green).

5. Connect the Auxiliary Power leads to a voltage source between 100-530VAC.

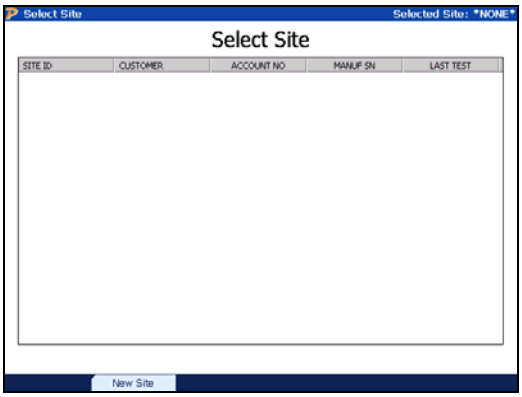
6. Clamp the SR752 probes around the current path of the meter installation according to the wiring diagram shown in “Equipment Hookup”. An arrow on the probe denotes polarity (arrow towards load). If possible, do not have the SR752 probes touching one another.

7. Power up the PowerMaster by pressing the ON key.

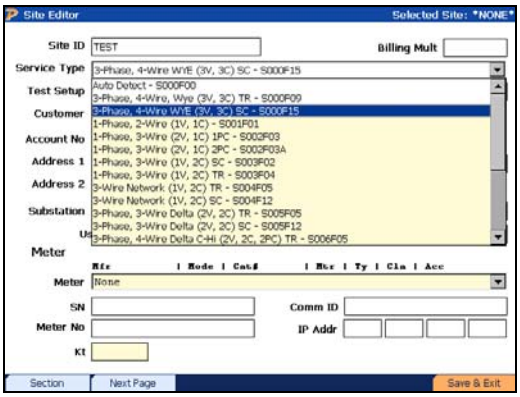
8. At the Main Menu, press 1 to “Select Site”



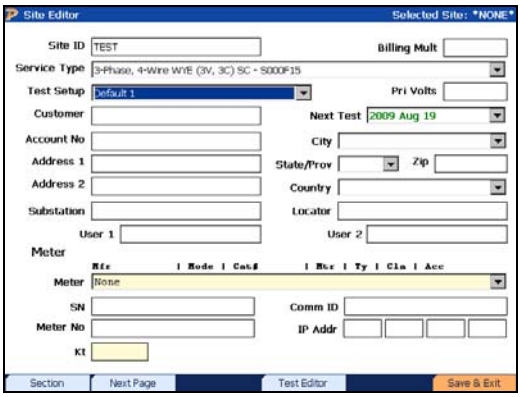
9. In the Site Editor, press F2 to create a new site. If the site is already present in the database, skip to step 12.



10. In the Site Editor screen, enter the Site ID and select “3-Phase, 4 Wire Wye (3V, 3C) SC – S000F15” for the service type.

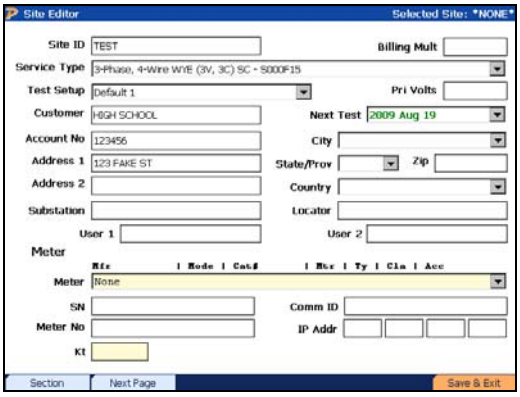

Site Editor
Selected Site: *NONE*
Site ID
TEST
Billing Mult
Service Type
3-Phase, 4-Wire WYE (3V, 3C) SC - S000F15
Test Setup
Auto Detect - S000F00
3-Phase, 4-Wire, Wye (3V, 3C) TR - S000F09
3-Phase, 4-Wire WYE (3V, 3C) SC - S000F15
1-Phase, 2-Wire (1V, 1C) - S001F01
1-Phase, 3-Wire (2V, 1C) 1PC - S002F03
1-Phase, 3-Wire (2V, 1C) 2PC - S002F03A
1-Phase, 3-Wire (1V, 2C) SC - S003F02
1-Phase, 3-Wire (1V, 2C) TR - S003F04
3-Wire Network (1V, 2C) TR - S004F05
3-Wire Network (1V, 2C) SC - S004F12
3-Phase, 3-Wire Delta (2V, 2C) TR - S005F05
3-Phase, 3-Wire Delta (2V, 2C) SC - S005F12
3-Phase, 4-Wire Delta C-Hi (2V, 2C, 2PC) TR - S006F05
Customer
Account No
Address 1
Address 2
Substation
Meter
Mfr | Mode | Cat# | Mtr | Ty | Cla | Acc
Meter
None
SN
Comm ID
Meter No
IP Addr
Kt
Section
Next Page
Save & Exit

11. Tab to “Test Setup,” and select the appropriate setup for this installation. To create or edit a setup, press F4. For detailed information about the “Test Setup,” refer to Section 7.4.1.1 in the User Manual.



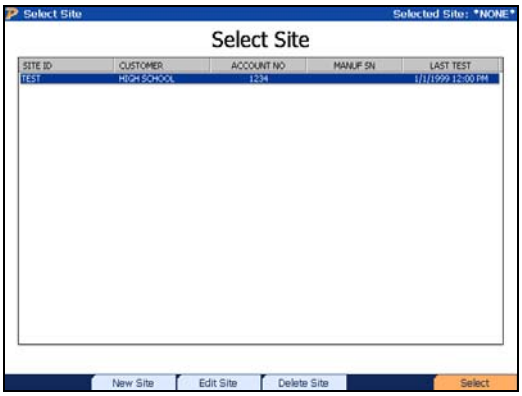
OPTIONS	
F2	Goes to next page
F4	Goes to Test Editor

12. Enter all other relevant fields in the Site Editor (required fields are in yellow). For detailed information about the Site Editor, refer to Section 7 in the User Manual. Press F6 to continue.

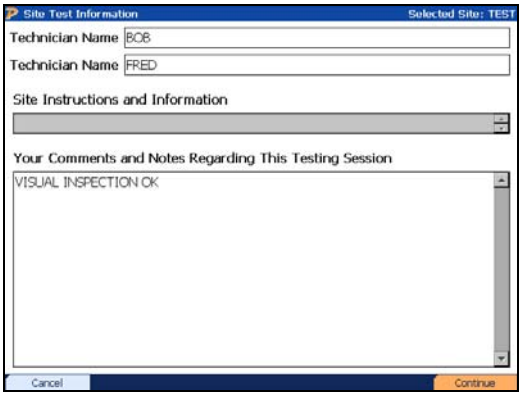


OPTIONS	
F2	Goes to next page
F6	Saves and continues

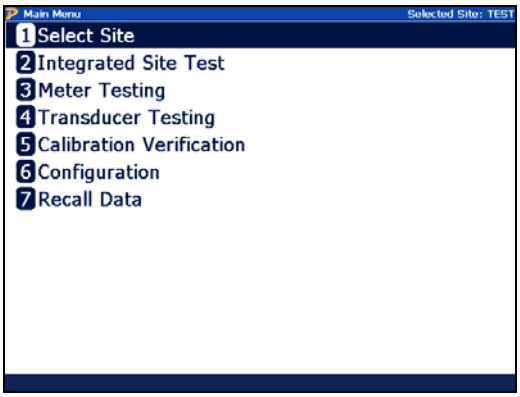
13. At the Site Editor, press F6 to select the site to be tested.



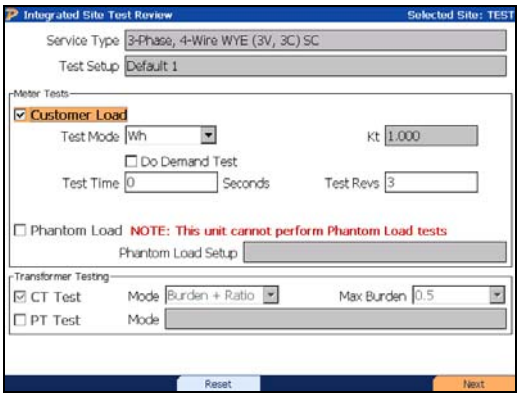
14. Enter the user's name(s) and any comments regarding the installation. Press F6 to continue.



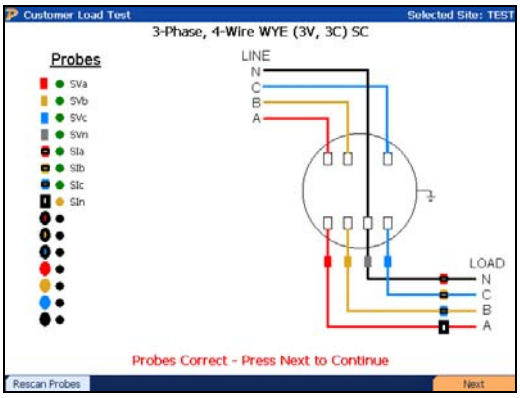
15. At the Main Menu, press 2 for "Integrated Site Test."



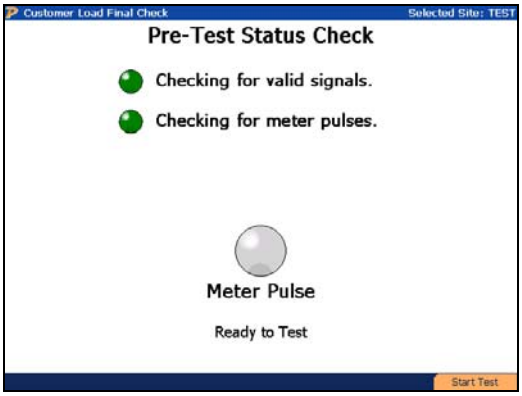
16. In “Integrated Site Test,” review and confirm the test setup. Press F6 to continue.



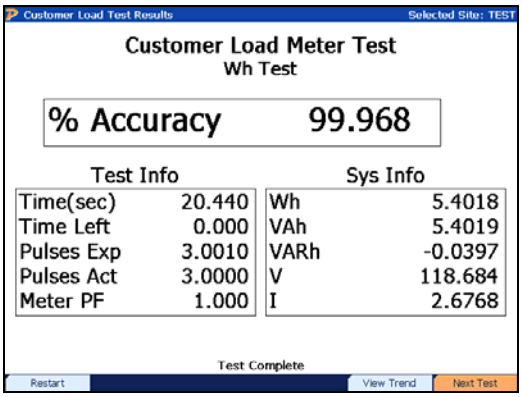
17. The PowerMaster® will confirm if the probes and lead sets are connected properly for the meter test. Install the IR Pulse Detector onto the meter and connect it to AUX DIGITAL on the PowerMaster®. Press F6 to continue.



18. The PowerMaster® will now check for valid signals for the voltages and currents for the meter test. Next, it will check for meter pulses. After meter pulses are detected, press F6 to continue.

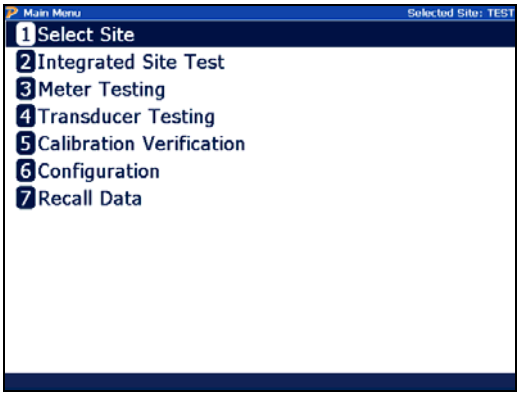


19. After the customer load meter test is complete, review the results. If within tolerance, press F6 to continue.

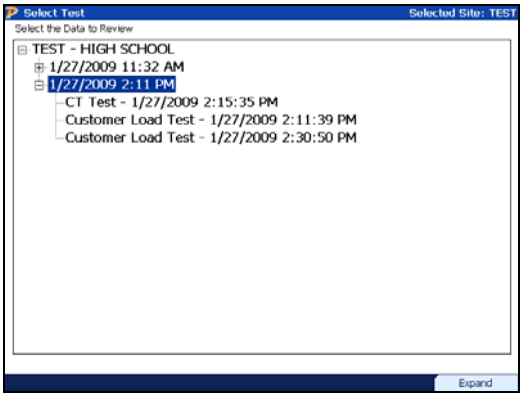


OPTIONS	
F1	Go back to step 16
F2	View trend plot
F6	Continue

20. At the Main Menu, select and press Enter for “Recall Data.”



21. Select the site that was tested and review the data before leaving the site. After review is complete, power off the PowerMaster® by pressing the ON key.


Select Test
Selected Site: TEST
Select the Data to Review
TEST - HIGH SCHOOL
1/27/2009 11:32 AM
1/27/2009 2:11 PM
CT Test - 1/27/2009 2:15:35 PM
Customer Load Test - 1/27/2009 2:11:39 PM
Customer Load Test - 1/27/2009 2:30:50 PM
Expand

22. Carefully disconnect all lead sets and probes and properly store them in the accessory case.

Using Optional Equipment

Procedure Using Three 36” Flexible Current Probes (600V, 1000A)

1. Power up the PowerMaster® by pressing the ON key.
2. From the PowerMaster®, connect the 3-Phase Probe Adapter Cable to PROBE SET 1, and the 3-Phase Voltage Cable to VOLTAGE.
3. Connect the 3-Phase Voltage Cable leads to the potentials according to the wiring diagram shown in “Equipment Hookup” (A = red, B = yellow, C = blue, Neutral = white, Ground = green)
4. Connect the 36” Flexible Current Probes (600V, 1000A) to the adapter cable end for A phase (red), B phase (yellow), and C Phase (blue).
5. Wrap the 36” Flexible Current Probes (600V, 1000A) around all of the current conductors for A, B, and C phase of the meter installation according to the wiring diagram shown in “Equipment Hookup”. An arrow on the connector denotes polarity (arrow towards load).
6. Follow the procedure through steps 4-22 as normal.

Procedure using the Photo Disk Detector

1. Follow the procedure through steps 1-15 as normal.
2. Connect the Photo Disk Detector to AUX DIGITAL on the PowerMaster®.
3. Install the Photo Disk Detector on the mechanical meter. Line the red photoelectric light to the rotating disk on the meter. Use the blue flathead screwdriver (supplied) to adjust the light sensitivity for pulse detection.
4. After pulses are detected, press F6 to continue.
5. Follow the procedure through steps 17-22 as normal.

Optional Equipment Combinations

When combining optional equipment or using any other custom testing requirements, please contact Powermetrix Technical Support for assistance.